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July 25, 2016
GO2-16-108

10 CFR 50.73

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555-0001

Subject: **COLUMBIA GENERATING STATION, DOCKET NO. 50-397**
LICENSEE EVENT REPORT NO. 2016-001-01

Dear Sir:

Transmitted herewith is Licensee Event Report (LER) No. 2016-001-01 for Columbia Generating Station, a supplement to the LER submitted on May 24, 2016. This report is submitted pursuant to 50.73(a)(2)(iv)(A).

There are no commitments being made to the NRC by this letter. If you have any questions or require additional information, please contact Ms. D.M. Wolfgramm, Regulatory Compliance Supervisor, at (509) 377-4792.

Executed this 25th day of July, 2016

Respectfully,

W. G. Hettel
Vice President, Operations

Enclosure: Licensee Event Report 2016-001-01

cc:
NRC Region IV Administrator
NRC NRR Project Manager
NRC Sr. Resident Inspector/988C
CD Sonoda – BPA/1399
WA Horin - Winston & Strawn

GO2-16-108

LICENSEE EVENT REPORT NO. 2016-001-01
Enclosure

NRC FORM 366 (01-2014) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES 01/31//2017

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

(See Page 2 for required number of digits/characters for each block).

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Columbia Generating Station	05000 397	1 OF 3

4. TITLE

MANUAL REACTOR SCRAM FOLLOWING LOSS OF REACTOR CLOSED COOLING

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER 05000
03	28	2016	2016	– 001	– 01	07	25	2016	FACILITY NAME	DOCKET NUMBER 05000

9. OPERATING MODE	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: *(Check all that apply)*			
1	☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)
	☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
	☐ 20.2203 (a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
	☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
10. POWER LEVEL	☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☒ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
	☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
100	☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
	☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ OTHER
	☐ 20.2203(a)(2)(vi)	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME	TELEPHONE NUMBER *(Include Area Code)*
Desiree Wolfgramm	(509) 377-4792

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX		CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
B	IG	MON	GE Reuter-Stokes	N						

14. SUPPLEMENTAL REPORT EXPECTED	15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
☐ YES *(If yes, complete 15. EXPECTED SUBMISSION DATE)* ☒ NO				

ABSTRACT *(Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)*

At 1322 PDT on March 28, 2016, a manual reactor scram was initiated in response to a loss of Reactor Closed Cooling (RCC). The loss of RCC was due to the opening of a Service Water (SW) valve at the inlet side of the Fuel Pool Cooling heat exchanger during performance of a partial surveillance without proper isolation of the RCC system piping from the heat exchanger. The cross-connection of the two systems caused depressurization and loss of flow from the RCC system into the non-pressurized SW piping. The SW valve was closed and the reactor was scrammed. Safety system responses to the scram signal were normal, with all control rods being fully inserted. Reactor decay heat was removed via bypass valves to the Main Condenser. No safety relief valves lifted and no emergency core cooling systems injected following the reactor scram.

The root cause was determined to be that plant Operators did not properly evaluate plant configuration when performing a partial surveillance including the marking as "N/A" (not applicable) of procedural steps, in accordance with plant procedures. Human performance aspects of the event were quickly addressed and additional corrective actions include reinforcing and monitoring procedure standards, and updating work control procedures at the station.

NARRATIVE

Plant Conditions

The reactor was at 100% power before the event. There were no structures, systems or components that malfunctioned or that were out of service that contributed to this event. One of the four reactor source range detectors failed to insert during the scram, with no impact on safety functions.

Event Description

On March 28, 2016, Operators performed a partial surveillance of the Fuel Pool Cooling (FPC) System [DA] to satisfy Post Maintenance Testing (PMT) for a Service Water (SW) [BI] to FPC isolation valve. Per PMT instructions, sections of the surveillance procedure had been marked as Not Applicable (N/A) for steps not considered necessary for the partial surveillance. The steps marked as N/A included closing Reactor Closed Cooling (RCC) [CC] isolation valves on the downstream side of the heat exchanger that isolate SW from RCC. Opening the SW valve without isolating RCC resulted in loss of pressurized RCC inventory into depressurized SW piping. Operators recognized the loss of RCC from Control Room indications and took appropriate actions to manually scram the reactor as required by abnormal operating procedures. All plant systems responded as expected during the scram transient. The SW valve was closed after approximately 2 minutes of being opened and RCC inventory recovered quickly.

This event was reported (EN # 51826 – 4 hour notification) under criterion 10 CFR 50.72(b)(2)(iv)(B) – Actuation of Reactor Protection System (RPS) [JC] when the reactor is critical. The event also requires a 60-day report, or Licensee Event Report (LER), under criterion 10 CFR 50.73(a)(2)(iv)(A) as applicable to condition 50.73(a)(2)(iv)(B)(1) – An event or condition that resulted in manual or automatic actuation of the RPS system including: reactor scram or reactor trip.

Event Precursors

The SW valve maintenance was originally scheduled to be performed concurrent with the quarterly surveillance of FPC. A change to the schedule moved the maintenance to after the surveillance. As a result a partial surveillance was performed. Work control reviews and pre-job briefs failed to recognize the significance of some of the steps being bypassed (N/A'd) in the partial surveillance such as closing the RCC isolation valves.

Cause

The root cause was determined to be that plant Operators did not properly evaluate plant configuration when performing a partial surveillance including the marking as "N/A" (not applicable) of procedural steps, in accordance with plant's Procedure and Work Instruction Use and Adherence requirements.

NARRATIVE

Contributing Causes were that Work Control did not follow procedures when revising the work instructions, Technical Specification tracking log, and the work order impact statement, and that the Work Management process per the Integrated Risk Management procedure does not ensure that PMT tasks (and potentially other tasks on the same work order) are adequately evaluated for risk as stand-alone activities.

Corrective Actions

Human performance aspects of the event were immediately addressed, including coaching to the individuals involved. A Stand Down was conducted with oncoming day and night shift crews on the event, and instructions were issued requiring appropriate levels of reviews and peer checks when bypassing procedure steps for partial performance of procedures. Expectations were communicated to place keep all Notes, Cautions and Warnings in Continuous Use procedures even when steps in a section are bypassed (N/A'd).

Additional Corrective Actions include reinforcing and monitoring procedure standards, updating work control procedures, and revising the Integrated Risk Management procedure to require evaluation of each task on a work order for risk, as well as aggregate risk of the entire work order, and document this evaluation in a summary on the impact statement.

Previous Occurrences

Previous occurrences or events where improper application of N/A to work documents was a contributing factor to a plant event were investigated. There were no noteworthy examples where the improper use of N/A required issuance of an LER.

Assessment of Safety Consequences

This event resulted in a reactor trip and associated loss of generation. The loss of RCC resulted in the loss of cooling to several components, including Reactor Recirculation Pumps, the Non-Regenerative Heat Exchanger, and Drywell Cooling. There were no adverse effects to those systems due to the temporary loss of cooling. There were no undesired radiological or industrial safety aspects resulting from this event. This event did not challenge the ability of Columbia Generating Station to safely shutdown, and all plant systems responded as designed.

Energy Industry Identification System Information

Energy Industry Identification System information codes from IEEE Standards 805-1984 and 803-1983 are represented in brackets as [X] and [XX] throughout the body of the narrative.